Escaping Capture By Multiple, Intelligent, Well-Informed, Cooperative Pursuers Amidst Stationary Clutter

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Summary

In this paper a new potential field approach is suggested for the evasive navigation of an agent that is engaging multiple pursuers in a stationary environment. Here, the gradient of a potential field that is generated by solving the Poisson equation subject to a set of mixed boundary conditions is used to generate a sequence of directions to guide the motion of an evader so that it will escape a group of pursuers while avoiding a set of forbidden regions (clutter). The focus here is on continuous evasion where the agent does not have the benefit of a target zone (e.g., a shelter) which up on reaching it can discontinue engaging the pursuers. The capabilities of the approach are demonstrated using simulation experiments.